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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,755	12/24/2003	Priyatosh Barman	08350.2480	8928
58982 7590 01/12/2007 CATERPILLAR/FINNEGAN, HENDERSON, L.L.P. 901 New York Avenue, NW WASHINGTON, DC 20001-4413				
EXAMINER				
DAY, HERNG DER				
ART UNIT		PAPER NUMBER		
2128				
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE		DELIVERY MODE
3 MONTHS		01/12/2007		PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/743,755

Applicant(s)

BARMAN ET AL.

Examiner

Herng-der Day

Art Unit

2128

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 12/24/03
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1-36 have been examined and rejected.

Priority

2. Applicants' claim for the benefit of a prior-filed application under 35 U.S.C. 120 is acknowledged. This application claims priority benefit of U.S. Provisional Application No. 60/436,464, filed December 27, 2002.

Drawings

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign mentioned in the description: fluid cylinder 200, as described at paragraph [21]. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the Examiner, the Applicants will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The disclosure is objected to because of the following informality. Appropriate correction is required.

4-1. There are two periods at the end of paragraph [02].

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-36 are rejected under 35 U.S.C. 102(b) as being anticipated by Sebastian et al., U.S. Patent 5,822,206 issued October 13, 1998.

6-1. Regarding claim 1, Sebastian et al. disclose a method of designing a machine component, comprising:

establishing a plurality of requirements associated with the machine component (to determine customer requirements, column 15, lines 14-25);

automatically establishing a component layout in response to the plurality of requirements (Automated CE system, step 48, FIG. 3; a detailed part drawing, ... are produced, column 15, lines 56-62);

analyzing the component layout to determine whether the component layout meets a predetermined performance threshold (to meet the performance requirements, column 8, lines 54-65); and

establishing a final component design when the component layout meets the predetermined performance threshold (approved, column 15, lines 63-66).

6-2. Regarding claim 2, Sebastian et al. further disclose including modifying the component layout when the component layout does not meet the predetermined performance threshold (if not approved in step 50 return to step 42, FIG. 3; enable the user to redesign the part, column 10, lines 10-37).

6-3. Regarding claim 3, Sebastian et al. further disclose including:

comparing the component layout with a set of information related to existing machine components (supply the dimensions and parametric information based upon known factors, such as ... known attributes about other related objects, column 22, lines 34-42); and

identifying an existing machine component having a similar layout to component layout (parts which have been previously designed can be introduced to the design of a new part as an external object, column 23, lines 49-55).

6-4. Regarding claim 4, Sebastian et al. further disclose wherein the analysis of the component layout analysis includes a finite element analysis (for example, FEM structural analysis, column 18, lines 52-58).

6-5. Regarding claim 5, Sebastian et al. further disclose wherein the predetermined performance threshold includes a minimum component life expectancy (all aspects of the product life cycle need to be taken into account, column 25, lines 22-29).

6-6. Regarding claim 6, Sebastian et al. further disclose wherein machine component is a fluid cylinder and the plurality of requirements includes at least one of a bore diameter, a rod diameter, a stroke length, a head end pin diameter, a rod end pin diameter, a head end port type, a

head end port size, a head end port orientation, a rod end port type, a rod end port size, and a rod end port orientation (a cylinder closed one end, column 12, lines 21-23).

6-7. Regarding claim 7, Sebastian et al. further disclose including archiving the final component design in a part database (to create feature templates and store them in a feature template library, column 13, lines 57-58; captures and stores the designer's intent, column 26, lines 58-64).

6-8. Regarding claim 8, Sebastian et al. further disclose including reviewing a previously stored final component design (parts which have been previously designed can be introduced to the design of a new part as an external object, column 23, lines 49-55).

6-9. Regarding claim 9, Sebastian et al. further disclose including determining the costs associated with the final component design (it can be determined if it is feasible to produce the part within budget, column 10, lines 24-33).

6-10. Regarding claim 10, Sebastian et al. further disclose including identifying design changes to reduce the costs associated with final component design (enable the user to redesign the part, ... so that budgets are met, column 10, lines 33-37).

6-11. Regarding claim 11, Sebastian et al. disclose a system for designing a machine component, comprising:

an input device (input device 35, FIG. 2 and FIG. 6) adapted to receive a plurality of requirements associated with a machine component (to determine customer requirements, column 15, lines 14-25); and

a processor (CPU 32, FIG. 2) adapted to establish a component layout in response to the plurality of requirements (a detailed part drawing, ... are produced, column 15, lines 56-62), to

analyze the component layout to determine whether the component layout meets a predetermined performance threshold (to meet the performance requirements, column 8, lines 54-65), and to establish a final component design when the component layout meets the predetermined performance threshold (approved, column 15, lines 63-66).

6-12. Regarding claim 12, Sebastian et al. further disclose including a storage device adapted to store a set of information related to a plurality of existing machine components (feature template library, column 13, lines 57-58).

6-13. Regarding claim 13, Sebastian et al. further disclose wherein the processor is adapted to perform a finite element analysis on the component layout (for example, FEM structural analysis, column 18, lines 52-58).

6-14. Regarding claim 14, Sebastian et al. further disclose wherein the input device includes an electronic design requirements form including input fields adapted to receive the plurality of requirements (Templates as shown in FIG. 2A and FIG. 2B).

6-15. Regarding claim 15, Sebastian et al. further disclose wherein machine component is a fluid cylinder and the plurality of requirements includes at least one of a bore diameter, a rod diameter, a stroke length, a head end pin diameter, a rod end pin diameter, a head end port type, a head end port size, a head end port orientation, a rod end port type, a rod end port size, and a rod end port orientation (a cylinder closed one end, column 12, lines 21-23).

6-16. Regarding claim 16, Sebastian et al. further disclose wherein the processor is adapted to determine the costs associated with the final component design (it can be determined if it is feasible to produce the part within budget, column 10, lines 24-33) and to identify design

changes to reduce the costs associated with the final component design (enable the user to redesign the part, ... so that budgets are met, column 10, lines 33-37).

6-17. Regarding claim 17, Sebastian et al. disclose a method of designing a machine component, comprising:

establishing a plurality of requirements associated with the machine component (to determine customer requirements, column 15, lines 14-25);

comparing the plurality of requirements with a set of information related to existing machine components in an automated manner (Automated CE system, step 48, FIG. 3); and

establishing a component layout design in response to said comparison (a detailed part drawing, ... are produced, column 15, lines 56-62).

6-18. Regarding claim 18, Sebastian et al. further disclose including identifying an existing machine component having a layout including at least one of the plurality of requirements (parts which have been previously designed can be introduced to the design of a new part as an external object, column 23, lines 49-55).

6-19. Regarding claim 19, Sebastian et al. further disclose including:

analyzing the component layout to determine whether the component layout meets a predetermined performance threshold (to meet the performance requirements, column 8, lines 54-65); and

establishing a final component design when the component layout meets the predetermined performance threshold (approved, column 15, lines 63-66).

6-20. Regarding claim 20, Sebastian et al. further disclose including modifying the component layout when the component layout does not meet the predetermined performance threshold (if

not approved in step 50 return to step 42, FIG. 3; enable the user to redesign the part, column 10, lines 10-37).

6-21. Regarding claim 21, Sebastian et al. further disclose including archiving the final component design in a part database (to create feature templates and store them in a feature template library, column 13, lines 57-58; captures and stores the designer's intent, column 26, lines 58-64).

6-22. Regarding claim 22, Sebastian et al. further disclose wherein the machine component is a fluid cylinder and the plurality of requirements includes at least one of a bore diameter, a rod diameter, a stroke length, a head end pin diameter, a rod end pin diameter, a head end port type, a head end port size, a head end port orientation, a rod end port type, a rod end port size, and a rod end port orientation (a cylinder closed one end, column 12, lines 21-23).

6-23. Regarding claim 23, Sebastian et al. further disclose including determining the costs associated with the final component design (it can be determined if it is feasible to produce the part within budget, column 10, lines 24-33).

6-24. Regarding claim 24, Sebastian et al. further disclose including identifying design changes to reduce the costs associated with final component design (enable the user to redesign the part, ... so that budgets are met, column 10, lines 33-37).

6-25. Regarding claim 25, Sebastian et al. disclose a system for designing a machine component, comprising:

an input device (input device 35, FIG. 2 and FIG. 6) adapted to receive a plurality of requirements associated with a machine component (to determine customer requirements, column 15, lines 14-25); and

a processor (CPU 32, FIG. 2) adapted to establish a component layout in response to the plurality of requirements (a detailed part drawing, ... are produced, column 15, lines 56-62), to compare the component layout with a set of information related to existing machine components (supply the dimensions and parametric information based upon known factors, such as ... known attributes about other related objects, column 22, lines 34-42), and to identify an existing machine component having a layout similar to the established component layout (parts which have been previously designed can be introduced to the design of a new part as an external object, column 23, lines 49-55).

6-26. Regarding claim 26, Sebastian et al. further disclose wherein the processor is adapted to analyze the component layout to determine whether the component layout meets a predetermined performance threshold (to meet the performance requirements, column 8, lines 54-65) and to establish a final component design when the component layout meets the predetermined performance threshold (approved, column 15, lines 63-66).

6-27. Regarding claim 27, Sebastian et al. further disclose including a storage device adapted to store a set of information related to a plurality of existing machine components (feature template library, column 13, lines 57-58).

6-28. Regarding claim 28, Sebastian et al. disclose a method of designing a machine component, comprising:

establishing a plurality of requirements associated with the machine component (to determine customer requirements, column 15, lines 14-25);

establishing a component layout in response to the plurality of requirements (a detailed part drawing, ... are produced, column 15, lines 56-62);

determining the costs associated with the component layout (it can be determined if it is feasible to produce the part within budget, column 10, lines 24-33); and

identifying changes in the component layout to reduce the costs associated with the component layout (enable the user to redesign the part, ... so that budgets are met, column 10, lines 33-37).

6-29. Regarding claim 29, Sebastian et al. further disclose including:

comparing the component layout with a set of information related to existing machine components (supply the dimensions and parametric information based upon known factors, such as ... known attributes about other related objects, column 22, lines 34-42); and

identifying an existing machine component having a layout similar to the established component layout (parts which have been previously designed can be introduced to the design of a new part as an external object, column 23, lines 49-55).

6-30. Regarding claim 30, Sebastian et al. further disclose including:

analyzing the component layout to determine whether the component layout meets a predetermined performance threshold (to meet the performance requirements, column 8, lines 54-65); and

establishing a final component design when the component layout meets the predetermined performance threshold (approved, column 15, lines 63-66).

6-31. Regarding claim 31, Sebastian et al. further disclose including modifying the component layout when the component layout does not meet the predetermined performance threshold (if not approved in step 50 return to step 42, FIG. 3; enable the user to redesign the part, column 10, lines 10-37).

6-32. Regarding claim 32, Sebastian et al. further disclose including archiving the final component design in a part database (to create feature templates and store them in a feature template library, column 13, lines 57-58; captures and stores the designer's intent, column 26, lines 58-64).

6-33. Regarding claim 33, Sebastian et al. disclose a system for designing a machine component, comprising:

an input device (input device 35, FIG. 2 and FIG. 6) adapted to receive a plurality of requirements associated with a machine component (to determine customer requirements, column 15, lines 14-25); and

a processor (CPU 32, FIG. 2) adapted to establish a component layout in response to the plurality of requirements (a detailed part drawing, ... are produced, column 15, lines 56-62), to determine the costs associated with the component layout (it can be determined if it is feasible to produce the part within budget, column 10, lines 24-33), and to identify changes in the component layout to reduce the costs associated with the component layout (enable the user to redesign the part, ... so that budgets are met, column 10, lines 33-37).

6-34. Regarding claim 34, Sebastian et al. further disclose including a storage device adapted to store a set of information related to a plurality of existing machine components (feature template library, column 13, lines 57-58).

6-35. Regarding claim 35, Sebastian et al. further disclose wherein the processor is adapted to compare the component layout with the set of information related to existing machine components (supply the dimensions and parametric information based upon known factors, such as ... known attributes about other related objects, column 22, lines 34-42) and to identify an

existing machine component having a layout similar to the component layout (parts which have been previously designed can be introduced to the design of a new part as an external object, column 23, lines 49-55).

6-36. Regarding claim 36, Sebastian et al. further disclose wherein the processor is adapted to analyze the component layout to determine whether the component layout meets a predetermined performance threshold (to meet the performance requirements, column 8, lines 54-65) and to establish a final component design when the component layout meets the predetermined performance threshold (approved, column 15, lines 63-66).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.

Reference to Thackston, U.S. Patent 6,295,513 B1 issued September 25, 2001, is cited as disclosing the NICECAD system.

Reference to Rassaian, U.S. Patent 6,813,749 B2 issued November 2, 2004, and filed February 12, 2002, is cited as disclosing a system for multidisciplinary design analysis of structural components.

Reference to Simmons et al., U.S. Patent Application Publication 2003/0208341 A9 published November 6, 2003, and filed October 12, 2001, is cited as disclosing analysis module and design module including cost module and performance module.

Reference to Hsu et al, "Current Research in the Conceptual Design of Mechanical Products", Computer-Aided Design, volume 30, Issue 5, April 1998, pages 377-389, is cited as disclosing a case-based reasoning in the conceptual design.

8. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Heng-der Day whose telephone number is (571) 272-3777. The Examiner can normally be reached on 9:00 - 17:30.

Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2100 Group receptionist: (571) 272-2100.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Kamini S. Shah can be reached on (571) 272-2279. The fax phone numbers for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Heng-der Day
January 3, 2007

H.D.


KAMINI SHAH
SUPERVISORY PATENT EXAMINER